



(19)

(11) Publication number:

Generated Document.

## PATENT ABSTRACTS OF JAPAN

(21) Application number: 07217213

(51) Intl. Cl.: H04M 3/54 H04Q 7/38

(22) Application date: 25.08.95

(30) Priority:

(43) Date of application  
publication: 07.03.97(84) Designated contracting  
states:(71) Applicant: MATSUSHITA ELEC  
LTD

(72) Inventor: TODA MITSU HARU

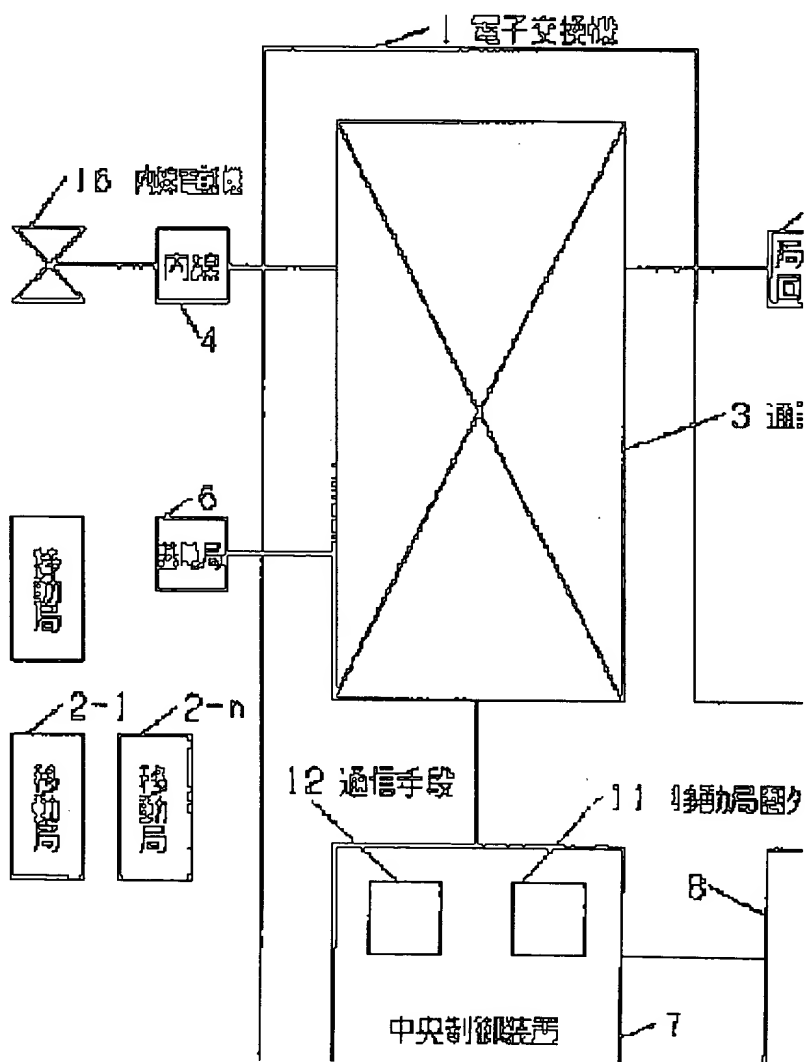
(74) Representative:

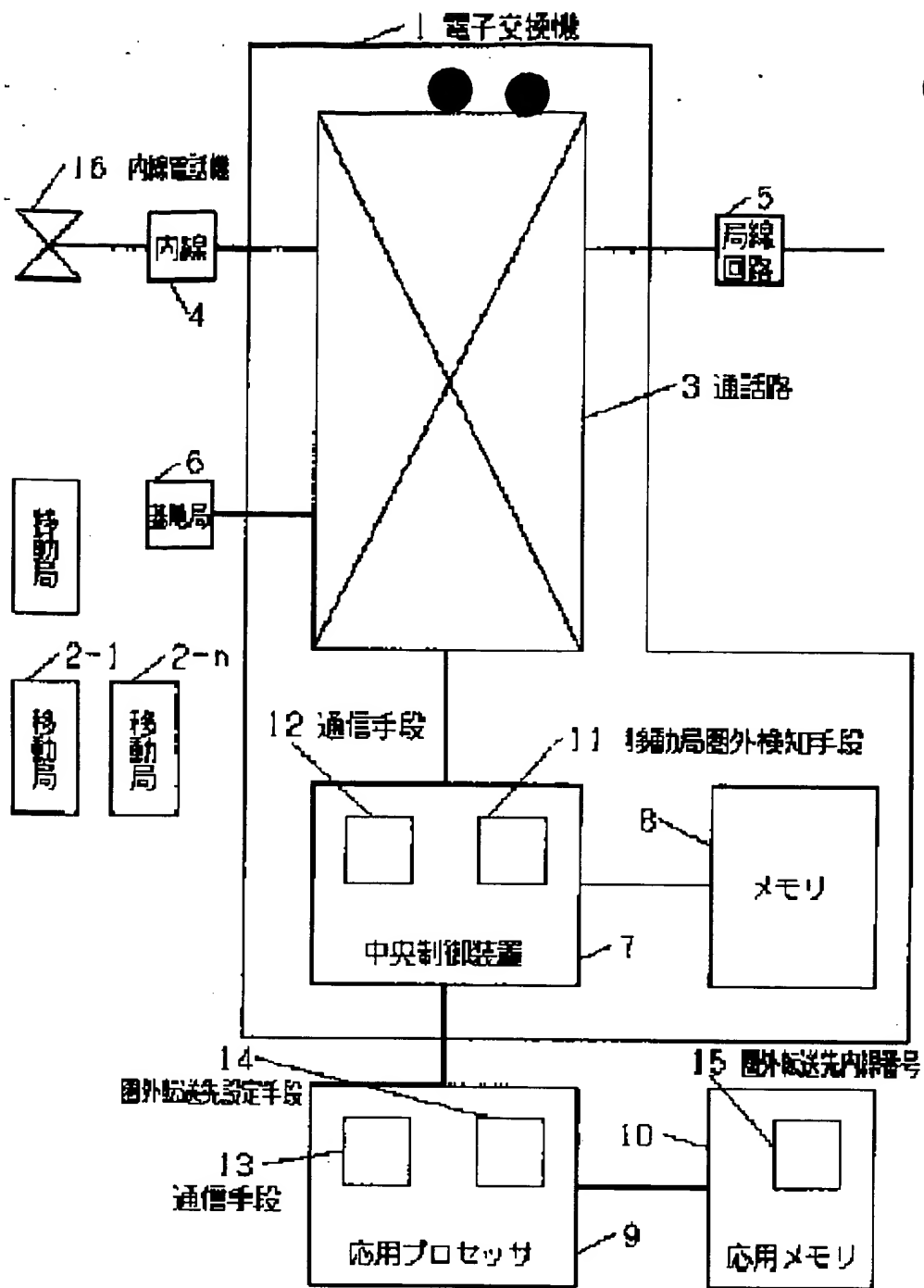
(54) ELECTRONIC  
EXCHANGE

(57) Abstract:

**PROBLEM TO BE SOLVED:** To allow an electronic exchange to have provision for smooth automatic transfer destination setting when it is detected that a cordless telephone set (mobile station) is at the outside of a coverage zone.

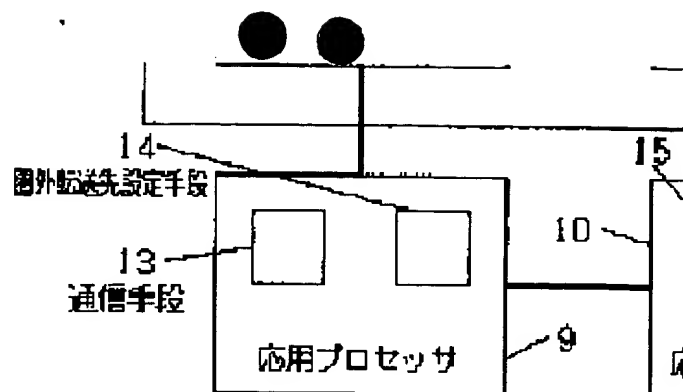
**SOLUTION:** A mobile station out-zone detection means 11 and a communication means 12 are provided to a central controller 7. An application processor 9 is provided with a communication means 13 and an out-zone transfer destination setting means 14 and an out-zone transfer destination extension number 15 is arranged on an application memory 10. When the user calls mobile stations 2-1-2-n and cannot call either of them because they are outside the coverage zone, the out-zone detection means 11 detects it and the communication means 12 informs it to the application processor 9. The application processor 9 uses the out-zone transfer destination setting means 14 to set automatically





a transfer destination to the application memory 10 based on the noticed information.

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## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-064985  
 (43)Date of publication of application : 07.03.1997

(51)Int. Cl. H04M 3/54  
 H04Q 7/38

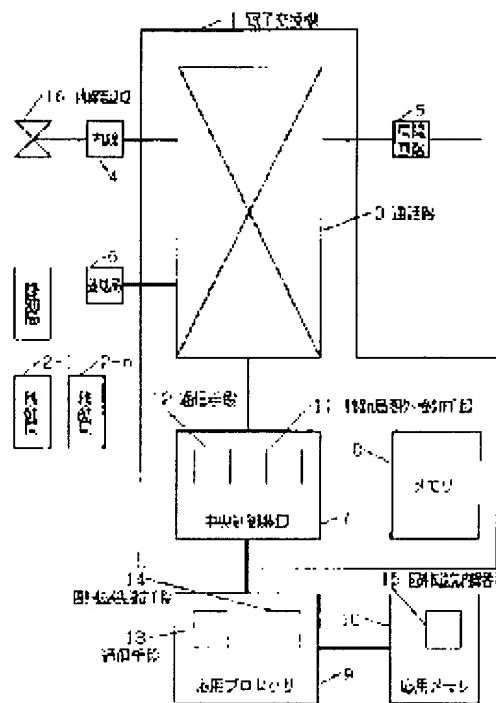
(21)Application number : 07-217213 (71)Applicant : MATSUSHITA ELECTRIC IND CO LTD  
 (22)Date of filing : 25.08.1995 (72)Inventor : TODA MITSU HARU

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## (57)Abstract:

PROBLEM TO BE SOLVED: To allow an electronic exchange to have provision for smooth automatic transfer destination setting when it is detected that a cordless telephone set (mobile station) is at the outside of a coverage zone.

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## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision  
 of rejection]

[Kind of final disposal of application  
 other than the examiner's decision of  
 rejection or application converted  
 registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's  
decision of rejection]

[Date of requesting appeal against  
examiner's decision of rejection]

[Date of extinction of right]

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[JP,09-064985,A]

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3. In the drawings, any words are not translated.

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**CLAIMS**

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[Claim(s)]

[Claim 1] The electronic automatic exchange equipped with an outside-of-the-circle detection means to detect that a cordless telephone machine is the outside of the circle, the means of communications which notifies this detection information, and the outside-of-the-circle destination setting means which carries out the automatic setting of the destination to memory based on the notified information.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001] [Field of the Invention] this invention relates to the electronic automatic exchange which connects a cordless telephone machine.

[0002] [Description of the Prior Art] The electronic automatic exchange which holds a mobile station makes between the cordless base stations (only henceforth a base station) arranged in a cordless telephone machine (only henceforth a mobile station), and the electronic automatic exchange communicate by the radio. Therefore, a mobile station may move to the outside of the circle which a radio does not reach from a base station. At the time of this outside-of-the-circle move, the outside-of-the-circle transfer is possible by setup from a mobile station in advance.

[0003] [Problem(s) to be Solved by the Invention] However, required \*\*\*\*\* which sets up the destination from the mobile station in advance in the above conventional electronic automatic exchanges. Therefore, it was the thing which a transfer will not be performed [ thing ] if you forget a setup, but has inconvenience sensed by the user.

[0004] this invention solves the above conventional problems, can perform a transfer setup automatically at the time of an outside-of-the-circle detection of a mobile station, and aims at offering the electronic automatic exchange which enabled smooth correspondence.

[0005] [Means for Solving the Problem] this invention is equipped with an outside-of-the-circle detection means to detect that a cordless telephone machine is the outside of the circle, the means of communications which notifies this detection information, and the outside-of-the-circle destination setting means which carries out the automatic setting of the destination to memory based on the notified information in order to attain the above-mentioned purpose.

[0006] [Function] If according to this invention constituted as mentioned above it detects that a cordless telephone machine is the outside of the circle by the outside-of-the-circle detection means and means of communications notifies this detection information to an outside-of-the-circle destination setting means, an outside-of-the-circle destination setting means can carry out the automatic setting of the destination to memory.

[0007] [Example] Hereafter, it explains, referring to a drawing about one example of this invention.

[0008] Drawing 1 shows the configuration of one example of this invention. In drawing 1, the electronic automatic exchange, and 2-1 - 2-n of 1 are cordless telephone machines (henceforth a mobile station). In the electronic automatic exchange 1, a channel 3, the extension circuit 4, the main-wire circuit 5, the cordless base station 6, the central control unit 7, the memory 8, the application processor 9, and the application memory 10 are arranged.

[0009] The mobile station outside-of-the-circle detection means 11 and the means of communications 12 are arranged at a central control unit 7, means of communications 13 and the outside-of-the-circle destination setting means 14 are arranged at the application processor 9, and the outside-of-the-circle destination extension number (number to be dialed) 15 is arranged on the application memory 10. The extension 16 is \*\*\*\*\*ed by the extension circuit 4.

[0010] The above configuration is hereafter explained still in detail with the operation. The mobile station 2-1 - 2-n communicate by the base station 6 and the radio. When a user calls the mobile station 2-1 - 2-n and the mobile station 2-1 - 2-n cannot call by moving to the outside of the circle which the radio from a base station 6 does not reach, it detects that it is the outside of the circle by the mobile station outside-of-the-circle detection means 11 of a central control unit 7, and means of communications 12 notifies a detection information to the application processor 9. The application processor 9 will set the destination as the outside-of-the-circle destination extension number 15 which is on the application memory 10 by the outside-of-the-circle destination setting means 14, if means of communications 13 receives a notice of a detection information.

[0011] Thus, when the mobile station 2-1 - 2-n move outside the circle, it is set up automatically and an outside-of-the-circle transfer is henceforth performed by the same operation as the conventional example.

[0012] Moreover, it can realize by giving the control function of a transfer setup on the application processor 9, without adding a large change to the configuration of a certain central control unit 7 and the memory 8 and 10 from the former. Moreover, adding various conditions, such as a time zone, to the selection technique of the destination etc. also has the advantage that correspondence becomes possible only by change of an application processor.

[0013] [Effect of the Invention] Since the automatic setting of the destination can be carried out at the time of an outside-of-the-circle detection of a mobile station according to this invention as explained above, smooth correspondence is attained.

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#### Field

[Field of the Invention] this invention relates to the electronic automatic exchange which connects a cordless telephone machine.

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#### Technique

[Description of the Prior Art] The electronic automatic exchange which holds a mobile station makes between the cordless base stations (only henceforth a base station) arranged in a cordless telephone machine (only henceforth a mobile station), and the electronic automatic exchange communicate by the radio. Therefore, a mobile station may move to the outside of the circle which a radio does not reach from a base station. At the time of this outside-of-the-circle move, the outside-of-the-circle transfer is possible by setup from a mobile station in advance.

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[Translation done 1



(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平9-64985

(43) 公開日 平成9年(1997)3月7日

(51) Int. Cl. <sup>6</sup>	識別記号	庁内整理番号	F I	技術表示箇所
H 0 4 M 3/54			H 0 4 M 3/54	
H 0 4 Q 7/38			H 0 4 Q 7/04	D

審査請求 未請求 請求項の数 1 O L (全 3 頁)

(21) 出願番号 特願平7-217213

(22) 出願日 平成7年(1995)8月25日

(71) 出願人 00005821

松下電器産業株式会社

大阪府門真市大字門真1006番地

(72) 発明者 戸田 光治

神奈川県横浜市港北区綱島東四丁目3番1

号 松下通信工業株式会社内

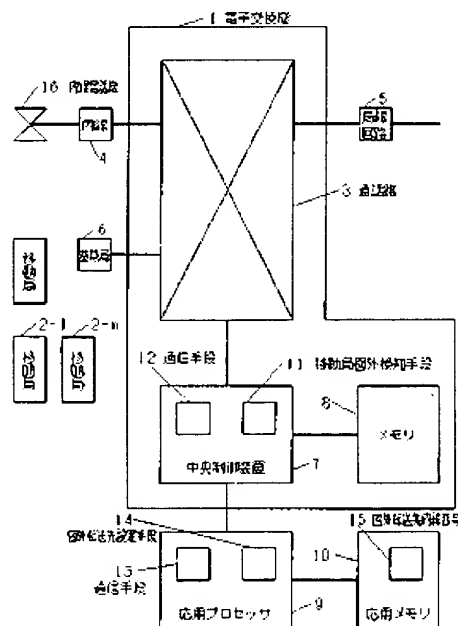
(74) 代理人 弁理士 滝本 智之 (外1名)

(54) 【発明の名称】 電子交換機

(57) 【要約】

【目的】 コードレス電話機（移動局）の圏外検出時に自動的に転送設定を行うことができ、スムーズな対応を可能とする。

【構成】 中央制御装置7に移動局圏外検出手段11と通信手段12を設ける。応用プロセッサ9に通信手段13と圏外転送先設定手段14を設け、応用メモリ10上に圏外転送先内線番号15を配置する。利用者が移動局2-1～2-nを呼び出した際、圏外で呼び出できない場合、圏外検出手段11により検知し、通信手段12により応用プロセッサ9に通知する。応用プロセッサ9は、通知された情報に基づき、圏外転送先設定手段14により応用メモリ10に転送先を自動的に設定する。



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## 【特許請求の範囲】

【請求項1】コードレス電話機が圏外であることを検知する圏外検知手段と、この検知情報を通知する通信手段と、通知された情報に基づき、メモリに転送先を自動設定する圏外転送先設定手段とを備えた電子交換機。

## 【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、コードレス電話機を接続する電子交換機に関する。

【0002】

【従来の技術】移動局を収容する電子交換機は、コードレス電話機（以下、単に移動局という）と電子交換機内に配置されたコードレス基地局（以下、単に基地局という）との間を無線により通信させる。したがって、移動局が基地局から無線の届かない圏外に移動する場合もある。この圏外移動時には、事前に移動局からの設定により圏外転送が可能である。

【0003】

【発明が解決しようとする課題】しかしながら、上記のような従来の電子交換機においては、事前に移動局から転送先を設定しておく必要があった。そのため、設定を忘れると転送が行われず、利用者に不便を感じられるものであった。

【0004】本発明は、上記のような従来の問題を解決するものであり、移動局の圏外検出時に自動的に転送設定を行うことができ、スムーズな対応を可能とした電子交換機を提供することを目的とするものである。

【0005】

【課題を解決するための手段】本発明は、上記目的を達成するために、コードレス電話機が圏外であることを検知する圏外検知手段と、この検知情報を通知する通信手段と、通知された情報に基づき、メモリに転送先を自動設定する圏外転送先設定手段とを備えたものである。

【0006】

【作用】上記のように構成された本発明によれば、コードレス電話機が圏外であることを圏外検知手段により検知し、この検知情報を通信手段により圏外転送先設定手段に通知すると、圏外転送先設定手段がメモリに転送先を自動設定することができる。

【0007】

【実施例】以下、本発明の一実施例について図面を参照しながら説明する。

【0008】図1は本発明の一実施例の構成を示している。図1において、1は電子交換機、2-1~2-nはコードレス電話機（以下、移動局という）である。電子交換機1内には通話路3、内線回路4、局線回路5、コードレス基地局6、中央制御装置7、メモリ8、応用プ

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ロセッサ9、応用メモリ10が配置されている。

【0009】中央制御装置7には移動局圏外検知手段11と通信手段12が配置され、応用プロセッサ9には、通信手段13、圏外転送先設定手段14が配置され、応用メモリ10上には、圏外転送先内線番号（ダイヤル番号）15が配置されている。内線回路4には内線電話機16が接続されている。

【0010】以上の構成について、以下、その動作と共に更に詳細に説明する。移動局2-1~2-nは基地局6と無線により通信を行う。利用者が移動局2-1~2-nを呼び出した際、移動局2-1~2-nが基地局6からの無線の届かない圏外に移動しており、呼び出されない場合には、中央制御装置7の移動局圏外検知手段11により圏外であることを検知し、通信手段12により応用プロセッサ9に検知情報を通知する。応用プロセッサ9は通信手段13により検知情報の通知を受けると、圏外転送先設定手段14により応用メモリ10上にある圏外転送先内線番号15に転送先を設定する。

【0011】このように移動局2-1~2-nが圏外に移動した場合、自動的に設定され、以降、従来例と同様の操作により圏外転送が行われる。

【0012】また、応用プロセッサ9上に転送設定の制御機能を持たせることにより、従来からある中央制御装置7、メモリ8、10の構成に大幅な変更を加えることなく実現することができる。また、転送先の選択方法に時間帯等の各種条件を加えることなどは応用プロセッサの変更のみで対応が可能となるという利点もある。

【0013】

【発明の効果】以上説明したように本発明によれば、移動局の圏外検出時に転送先を自動設定することができるので、スムーズな対応が可能となる。

## 【図面の簡単な説明】

【図1】本発明の一実施例における電子交換機を示す概略ブロック図

## 【符号の説明】

- 1 電子交換機
- 2 コードレス電話機（移動局）
- 6 基地局
- 7 中央制御装置
- 8 メモリ
- 9 応用プロセッサ
- 10 応用メモリ
- 11 移動局圏外検知手段
- 12 通信手段
- 13 通信手段
- 14 圏外転送先設定手段
- 15 圏外転送先内線番号（ダイヤル番号）

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【図1】

